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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,108	02/26/2002	Antonio Serra	07040.0121	2684
7590 09/30/2004 Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P. 1300 I Street, N.W. Washington, DC 20005-3315			EXAMINER SELLERS, ROBERT E	
			ART UNIT 1712	PAPER NUMBER

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/082,108	SERRA ET AL.	
	Examiner	Art Unit	
	Robert Sellers	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 87-108 and 133-164 is/are pending in the application.
- 4a) Of the above claim(s) 93,97-108,138-140, 147-160, 163 and 164 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 82,87,94-96,133-137,141-146,161 and 162 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/8/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

1. The status of the application as a continuation of PCT application no. PCT/EP00/07106 filed July 25, 2000 is acknowledged. A certified copy of European priority application no. 99116676.0 filed August 26, 1999 has been filed with the application.
2. Claims 98-108 and 147-160 are drawn to inventions nonelected with traverse in the response filed February 17, 2004. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01. Claims 93 and 138-140 remain withdrawn as being directed to a non-elected species of epoxidized liquid organic compound. Claim 97 is withdrawn as denoting a non-elected species of elastomeric polymer containing carboxylic groups.
3. The 35 U.S.C. 112, first paragraph and second paragraphs, rejections are rescinded since the questioned ranges defined by "greater than or equal to" and "less than or equal to" are substantiated by the lower and upper limits described in the specification as "between" which is characterized by the terms "generally," "preferably" and "[i]n general." Such terms encompass the exact claimed minima and maxima of the ranges embraced by the claimed "equal to." The number average basis for the molecular weight of the epoxidized diene oligomer of withdrawn claims 138 and 139 is supported by page 10, line 33. The adoption of the suggested descriptive amount limitation in claim 146 resolves the indefiniteness of the "effective amount" language.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 142 and 143 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

4. Claims 142 and 143 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection is maintained for the reasons of record set forth in the previous Office action. The specification on page 13, lines 3-5 indicates the molecular weight of the elastomeric polymer containing carboxylic groups as an "average" molecular weight. There is no basis for the newly claimed "number average" molecular weight.

Claims 87-91, 94-96, 133-136 and 144-145 are rejected under 35 U.S.C. 102(b) as being anticipated by Italian Patent No. 1,245,551.

5. Claim 137 is removed since it limits the freezing point of the epoxidized oil of claim 92 which was not included in the rejection. Claim 146 is removed because the translation of the Italian patent does not recite a condensation catalyst. Otherwise, the rejection is maintained for the reasons of record set forth in the previous Office action.

The attached translation is relied upon instead of the one submitted in the Information Disclosure Statement filed September 8, 2004 since the two translations are essentially equivalent except the attached version contains numbered pages for easier reference.

The arguments filed September 8, 2004 have been considered but are unpersuasive.

6. Example 5 on page 18 shows a "vulcanized product" prepared from 100 parts by weight of Krynac 221 butadiene-acrylic acid copolymer with 30 mol% of acrylic acid (page 11, lines 7-14), 50 parts by weight of Epoxyprene 50 epoxidized natural rubber and 45 parts by weight of carbon black filler. The vulcanizate is useful in the manufacture of pneumatic tires (page 3, lines 22-23).

7. According to page 10, lines 28-29, within the scope of the claimed epoxidized liquid organic compound are "epoxidized diene oligomers, wherein the base polymer structure, [is] of synthetic or natural origin," thereby embracing the epoxidized natural rubber of the prior art.

8. The evidence presented in Table 7 on page 38 of the specification cannot overcome the 35 U.S.C. 102(b) rejection. Even if the data is considered, it is unclear whether the results are a function of the type of epoxidized liquid organic compound or the significantly diverse amounts of NIPOL EP<sup>®</sup> 1072 carboxylated acrylonitrile/butadiene terpolymer (page 23, lines 9-12) in Example 20 (100 parts by weight) vs. Comparative Example 23 (50 parts by weight).

Art Unit: 1712

Furthermore, Example 20 employs 60 parts by weight of PARAPLEX® G-60 epoxidized soybean oil which is compared to a different quantity of EPOXYPRENE® ENR 50 (50 parts by weight). This comparison has been chosen due to the use of equivalent levels of 60 parts by weight of ZEOSIL® 1165 MP. Finally, the evidence is not commensurate in scope with the claims since the testing of a single species of epoxidized liquid organic compound does not establish the patentability of such structurally distinct types the epoxidized diene oligomers disclosed on page 10, line 28 to page 11.

9. Claims 87-91, 94-96, 133-136, 141-146, 161 and 162 are rejected under 35 U.S.C. 103(a) as being unpatentable over French Patent No. 2,187,808.

10. Claim 137 is removed since it limits the freezing point of the epoxidized oil of claim 92 which was not included in the rejection.

The arguments filed September 8, 2004 have been considered but are unpersuasive.

11. The French patent clearly teaches that the diepoxide resin is an epoxidized polyolefin according to page 2, line 13 of the translation which is within the realm of the disclosed epoxidized diene oligomer. The use of catalysts is suitable according to page 3, the last line to page 4, line 1. There is no requirement that auxiliary vulcanization agents be present as indicated by the phrase "[w]e can use auxiliary vulcanization by means of sulfur or peroxide" on page 2, lines 4-5.

Art Unit: 1712

12. Table 3 on page 28 of the specification containing Comparative Examples 14 and 15 with bisphenol A epoxy resins is not representative of the closest prior art example embodied in Example 7 of the French patent. Page 21 of the translation reveals that Example 7 is composed of Flexol EPO which is the elected species of epoxidized soybean oil (page 11, last line), Thiokol HC-434 which is a carboxyl terminated polyisobutylene (page 11, line 12), ISAF furnace black (page 12, line 1) and a DABCO catalyst (i.e. 1,4-diazabicyclo[2.2.2]octane (page 11, line 4).

13. The epoxidized soybean oil chain elongation agent serves to crosslink the carboxylated diene polymer according to page 9, the last paragraph to page 10, line 1.

14. Claims 87-92, 94-96, 133-137, 141-146, 161 and 162 are rejected under 35 U.S.C. 103(a) as being unpatentable over Great Britain Patent No. 2,197,654, the Plastics and Rubber Processing and Applications article by Alex et al. and Japanese Patent No. 10-36563 in view of Italian Patent No. 1,245,551.

Sandstrom Patent No. 5,642,979 is no longer relied upon. Otherwise, the rejection is maintained for the reasons of record set forth in the previous Office action. The arguments filed September 8, 2004 have been considered but are unpersuasive.

15. The claimed "crosslinked elastomeric material" is equivalent to the dynamically crosslinked carboxylated butadiene-acrylonitrile elastomer with the epoxidized soybean oil of the British patent regardless of whether the crosslinked product can be remelted.

16. The ENR-50 epoxidized natural rubber of Alex et al. is encompassed by the claimed epoxidized liquid organic compound which includes "epoxidized diene oligomers, wherein the base polymer structure, [is] of synthetic or natural origin," as set forth on page 10, lines 28-29 of the specification.

17. The Japanese patent (page 4, paragraph 10) espouses the use of vulcanization accelerators for the reaction between carboxylated acrylonitrile-butadiene rubbers and epoxy compounds. It would have been obvious to employ the vulcanization accelerators of the Japanese patent in the crosslinking reactions of the British patent and Alex et al. in order to reduce the curing time.

18. Claims 146, 161 and 162 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Italian patent in view of the French and Japanese patents.

The Italian patent does not recite the claimed condensation catalyst. It would have been obvious to employ the catalysts of the French or Japanese patent in the composition of the Italian patent in order to reduce the crosslinking time.



The amendment necessitated the new ground of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

(571) 272-1093 (Fax no. (703) 872-9306)  
Monday to Friday from 9:30 to 6:00 EST

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Robert Sellers  
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Art Unit 1712